

## Patent Claims

1. Device for the investigation of components of a generator which border on a machine air gap (29) between stator and rotor (22), with the rotor (22) built in, by means of at least one movable inspection probe (35), **wherein** the device comprises a base unit (31) which can be secured to the rotor (22) on both sides, and which permits the at least one inspection probe (35) to move in the machine air gap (29), both in an axial direction with respect to the generator axis and also in the circumferential direction of the machine air gap (29) over the whole circumference of the rotor.
2. Device according to claim 1, wherein the base unit (31) can be secured to rotor caps (30) installed at the ends of the rotor (22).
3. Device according to one of the foregoing claims, wherein the base unit (31) comprises two end portions (31a, 31b) which are secured to the rotor caps (30), and wherein at least one, but preferably two, carrying cables (34) are arranged between the end portions (31a, 31b), and the at least one inspection probe (35) is mounted, displaceably in the axial direction in the machine air gap (29), on the said carrying cable(s) (34).
4. Device according to claim 3, wherein the at least one inspection probe (35) is secured to a tension cable (33), which tension cable (33) is secured to be able to roll on tension rollers (32) installed on the end portions (31a, 31b) such that the inspection probe (35) can be displaced in the axial direction by means of synchronous rotation of the two tension rollers (32).
5. Device according to claim 4, wherein the tension cable (33) is rolled on the tension rollers (32) on both sides such that the use of the device is possible with different generator lengths.
6. Device according to one of the foregoing claims, wherein the end portions (31a, 31b) of the base unit (31) are mounted to move circumferentially on the rotor caps (30).
7. Device according to claim 6, wherein the end portions (31a, 31b) are arranged on the

radially outside cylindrical surface of the rotor cap (30) and are secured to the rotor caps (30) with belts (36) running around this outside cylindrical surface.

8. Device according to claim 7, wherein the belts (36) consist of individual pieces (43) which effect an adaptation to different rotor diameters, and which have elements (44) between the individual pieces (43), particularly at the connection points, facilitating the displaceability of the base unit on the rotor cap (30), circulating in the circumferential direction of the machine air gap (29).

9. Device according to one of claims 6-8, wherein the mobility of the base unit (31) on the rotor caps (30) is effected by means of movement rollers (38) which roll on the rotor caps (30) and are driven by motors arranged in the end portions (31a, 31b).

10. Device according to claim 9, wherein the movement rollers (38) are of conical shape and are arranged on the end portions (31a, 31b) such that the end portions (31a, 31b) always have the tendency, on movement on the rotor caps (30), to move toward the interior of the machine air gap (29), and wherein moreover the end portions (31a, 31b) have a stop (42) which respectively comes to abut against the axially outward end of the rotor caps (30), whereby the inward directed movement effected due to the conical movement rollers (38) is limited.

11. Device according to one of the foregoing claims, wherein the inspection probe (35) is guided laterally by two carrying cables (34) and can be fitted with diverse inspection units, which respectively have a camera for visual inspection of the generator and for the positioning of the inspection probe (35), and wherein in particular such an inspection unit is additionally equipped with means for the investigation of the stator groove keying, or additionally with means for investigation of the stator lamination bundle.

12. Process for the investigation of components of a generator bordering on a machine air gap (29) between stator and rotor (22) with the rotor (22) built in, by means of at least one movable inspection probe (35), with the use of a device according to one of claims 1-11.